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09/761,983	01/17/2001	Masaki Umayabashi	P/289-162	5773

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EXAMINER	
TON, ANTHONY T	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/761,983	UMAYABASHI, MASAKI	
	Examiner	Art Unit	
	Anthony T Ton	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 January 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2, 6 and 7*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the following minor informalities:

a) **In Fig.7**: step 704, missing a minus sign "-" between variables $\mathbf{VQ_h}$ and $\mathbf{VQ_{(h+1)}}$; see the specification page 12 line 6 for the reference.

Examiner suggests changing the expression at the step 704 to "$\mathbf{C_h = VQ_h - VQ_{(h+1)}}$".

b) **In Fig.7**: step 709, the conditions "**Yes**" and "**No**" are not incorporated with the specification shown in page 12 lines 15-22; particularly in lines 17-18 of this page, it has disclosed that if the decision at step 709 is **negative (i.e., No)**, the variable "h" is incremented by one at step 710. However, the decision associated with the step 709 shown in Fig.7 is **positive (i.e., Yes)**. Therefore, the drawing and the specification are not incorporated to each other for this step of the Fig.7.

Examiner suggests swapping the "**Yes**" and "**No**" to each other.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification Objections

2. The disclosure is objected to because of the following informalities:

a) Term "assignment unit **9**" in page 2 line 16, line 20 and line 22; and in page 3, line 1 is not associated with drawing shown in Fig.2

Examiner suggests changing this term to "assignment unit **13**".

b) Term "the buffer **11**" in page 3, line 10 is not associated with drawing shown in Fig.2

Examiner suggests changing this term to "the buffer **6**".

c) Term "**an** point-to-multipoint" in page 6, line 5 is a typo.

Examiner suggests changing this term to "**a** point-to-multipoint".

d) Term "when h – 4, C_4 – 4 x 20/4 = 20" in page 13, line 5 is a typo.

Examiner suggests changing this term to "when h = 4, C_4 = 4 x 20/4 = 20".

Claim Rejections - 35 USC § 112

3. The following is a quotation of the **second paragraph** of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. **Claims 5, 11 and 17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) **Claim 5** recites the limitations "**the third count number**" in **line 6** and in **line 7** (two places). There are insufficient antecedent basis for these limitations in the claim.

b) **Claims 11 and 17** recite the limitations "**the third count number**" in **line 5** and in **line 6** (two places). There are insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1-4** and **6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dail et al.** (US Patent No. 5,**570,355**) in view of **Miyabe et al.** (Japan Patent No. **JP10-242981A**) (IDS #2)

a. **In Regarding to Claim 1**: **Dail et al. disclosed** a timeslot assignment method for a communication system in which a plurality of end-user systems are connected to a timeslot assignment unit via a common transmission medium, each of said end-user systems comprising a buffer for storing packets of either variable or constant length and forwarding packets from said buffer on assigned timeslots *(see Fig.1: 107 (end users), 109 (timeslot assignment unit), 102 and 108 (common transmission medium); and see Fig.11: Bandwidth Controller (timeslot assignment unit), ATM/VBR delay sensitive/tolerance calls (end user systems with variable length packets), 1101-1 to 1101-n and 1102-1 to 1102-m (buffers of end user systems), and block 1112 STM & ATM/CBR calls (packets with constant length))*, the method comprising the steps of:

(a) determining a first count number of said packets in the buffer of each of said end-user systems *(see Fig.12: B_A = Current ATM Bandwidth Allocation (first count number of the packets in the buffer))*

(b) determining a second, total count number of timeslots previously assigned to each end-user system during a delay time period of said timeslot assignment unit *(see Fig.12: G_A = Current ATM Guaranteed Bandwidth (total count number of timeslots previously assigned to each end-user system))*;

(c) that using said first and second count numbers for determining a third count number of packets in said buffer *(see Fig.12: X_A = Current ATM Extra bandwidth);* and

(d) assigning timeslots to packets of each end-user system based on said third count number *(see Fig.23 block 2309).*

Dail et al. failed to explicitly disclose step (c) that using said first and second count numbers for determining a third count number of packets in said buffer to which **timeslots are still not assigned.**

Miyabe et al. (provided by **IDS #2) disclosed** such timeslots are still not assigned *(see Drawing 1: terminal unit 1 (an end user system) subscriber line terminating set 2 (timeslot assignment unit); and sections [0011] to [0016]: polling demand (count number of packets), a predetermined threshold (total number of assigned timeslots), and the polling waiting state of the applicable terminal unit 1 (hence timeslots are still not assigned)).*

Therefore, it would have been obvious to one of ordinary skilled in the art can employ such timeslots are still not assigned throughout the X_A Current ATM Extra Bandwidth of Dail et al, as taught by Miyabe et al., in order to control bandwidth assignment to a plurality of end user systems more effectively, **the motivation being** to make Dail et al perform timeslot assignment in a communication system with a transmission dynamically changes in the amount of packets.

b. **In Regarding to Claim 2**: **Dail et al. further disclosed** wherein said third count number equals a difference between said first and second count numbers *(see Fig.12: Constraints $B_A = G_A + X_A$, hence $X_A = B_A - G_A$ (the difference)).*

c. **In Regarding to Claim 3**: **Dail et al.** and **Miyabe et al. disclosed** all aspects of this claim as set forth in Claim 1.

Both **Dail et al.** and **Miyabe et al. failed to explicitly disclose** wherein the step (d) assigns said timeslots on a round-robin basis.

It was well known in the art that assigns said timeslots on a round-robin basis. Therefore, **it would have been obvious** to one having ordinary skill in the art at the time the invention was made to provide such assigns said timeslots on a round-robin basis as taught by **Dail et al., the motivation being** to enable a scheduling method in Dial et al.

d. **In Regarding to Claim 4**: **Dail et al. further disclosed** wherein the step (d) assigns said timeslots in proportion to said third count number *(see col.7 lines 9-14)*.

e. **In Regarding to Claim 6**: **Dail et al. further disclosed** wherein said packets are ATM cells *(see Figs 8 and 9: ATM Cell)*.

7. **Claims 7-10, 12-16, 18 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dail et al.** (US Patent No. **5,570,355**) in view of **Umeuchi et al.** (Japan Patent No. **JP9-214459A**) (IDS #7), and further in view of **Miyabe et al.** (Japan Patent No. **JP10-242981A**) (IDS #2).

a) **In Regarding to Claim 7**: **Dail et al. disclosed** a communication system comprising:

a plurality of end-user systems *(see Fig.1: 107s)*; and

a timeslot assignment unit connected via a common transmission medium to said end-user systems *(see Fig.1: 109)*,

each of said end-user systems comprising:

a buffer for storing packets of either variable or constant length *(see Fig.11: ATM/VBR delay sensitive/tolerance calls (end user systems with variable length packets), 1101-1 to 1101-n and 1102-1 to 1102-m (buffers of end user systems), and block 1112 STM & ATM/CBR calls (packets with constant length))*; and

a controller for forwarding packets from said buffer on timeslots assigned by said timeslot assignment unit and transmitting a signal to said timeslot assignment unit for indicating the detected queue length *(see Fig.4: block 335)*.

said timeslot assignment unit comprising:

a timeslot count table having a plurality of entries corresponding to said end-user systems, each of the entries having a length corresponding to a delay time period of said timeslot assignment unit for storing a plurality of count numbers of assigned timeslots *(see Figs.7-9 and 12; and see col.20 line 1 – col.21 line 6)*; and

a controller for (a) determining a total value of count numbers stored in each entry of said timeslot count table *(see col.20 lines 1-15)*, (b) receiving the queue length indicating signal from each of said end-user systems *(see col.16 lines 36-42)*, (c) using said total count number and the received queue length for determining a virtual queue length of each end-user system indicating a count number of packets in said buffer *(see col.16 lines 42-57; and see col.24 lines 49-65)*, (d) assigning timeslots to each end-user system based on said virtual queue length *(see col.16 lines 58-67)*, and (e) storing a count number of the assigned timeslots in an entry of said timeslot count table corresponding to said each end-user system *(see col.11 lines 34-64)*.

Dail et al. failed to explicitly disclose a queue length detector for detecting a queue length indicating a count number of said packets in the buffer; and step (c) using said first and second count numbers for determining a third count number of packets in said buffer to which **timeslots are still not assigned.**

Umeuchi et al. (provided by **IDS #7) disclosed** such a queue length detector for detecting a queue length indicating a count number of said packets in the buffer *(see Fig.2: block 61B).*

Therefore, it would have been obvious to one of ordinary skilled in the art can employ such a queue length detector for detecting a queue length indicating a count number of said packets in the buffer throughout the ATM MAC Processor 332 as shown in Fig.3 of Dail et al, as taught by Umeuchi et al., in order to determine the remaining packets stored in the buffer of each user, **the motivation being** to make Dail et al perform timeslot assignment in a communication system with a transmission dynamically changes in the amount of packets.

Miyabe et al. (provided by **IDS #2) disclosed** such timeslots are still not assigned *(see Drawing 1: terminal unit 1 (an end user system) subscriber line terminating set 2 (timeslot assignment unit); and sections [0011] to [0016]: polling demand (count number of packets), a predetermined threshold (total number of assigned timeslots), and the polling waiting state of the applicable terminal unit 1 (hence timeslots are still not assigned)).*

Therefore, it would have been obvious to one of ordinary skilled in the art can employ such timeslots are still not assigned throughout the X_A Current ATM Extra Bandwidth of Dail et al, as taught by Miyabe et al., in order to control bandwidth assignment to a plurality of end user systems more effectively, **the motivation being** to make Dail et al perform timeslot assignment in a communication system with a transmission dynamically changes in the amount of packets.

b) **In Regarding to Claim 8**: **Dail et al. further disclosed** wherein said virtual queue length equals a difference between said total count number and the received queue length *(see Fig.12: Constraints $B_A = G_A + X_A$, hence $X_A = B_A - G_A$ (the difference)).*

c) **In Regarding to Claim 9**: **Dail et al.** and **Miyabe et al. disclosed** all aspects of this claim as set forth in Claim 7.

Dail et al., Umeuchi et al. and **Miyabe et al. failed to explicitly disclose** wherein the step (d) assigns said timeslots on a round-robin basis.

It was well known in the art that assigns said timeslots on a round-robin basis.

Therefore**, it would have been obvious** to one having ordinary skill in the art at the time the invention was made to provide such assigns said timeslots on a round-robin basis as taught by **Dail et al., the motivation being** to enable a scheduling method in Dial et al.

d) **In Regarding to Claim 10**: **Dail et al. further disclosed** wherein the step (d) assigns said timeslots in proportion to said third count number *(see col.7 lines 9-14)*.

e) **In Regarding to Claim 12**: **Dail et al. further disclosed** wherein said packets are ATM cells *(see Figs 8 and 9: ATM Cell)*.

f) **In Regarding to Claims 13-16 and 19**: The claimed limitations disclosed in these claims are the same as that in the Claims 7-10 and 12, respectively. Therefore, the rejections in the Claims 7-10 and 12 would apply to these Claims 13-16 and 19, respectively.

g) **In Regarding to Claim 18**: **Dail et al. further disclosed** wherein said timeslot assignment unit comprises:

a first controller for transmitting a signal to each of said end-user systems for indicating a count number of said assigned timeslots for storing the count number into the memory of each end-user system *(see Fig.4 block 432)*; and a second controller for transmitting a position signal representing timeslot positions of the timeslots assigned by the first controller to each of said end-user systems *(see Fig.4 block 435)*.

Allowable Subject Matter

8. **Claims 5, 11** and **17** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT
5/27/2004

Primary Ex: Phirin Sam